REMARKS

I. Status of Claims

By the instant Amendment, new claims 71-77 have been added. Claims 29-39, 43, 44, 46-53, 59, 62, 66, and 67 remain pending the application.

Claims 68-70 are canceled.

New claims 71 and 72 are directed to aqueous herbicidal compositions that require a combination of glyphosate and triclopyr in a weight ratio between 7.6:1 and 20:1.

New claims 73 and 74 call for a combination of glyphosate and clopyralid, but are otherwise comparable to claims 71 and 72.

New claim 75 depends from claim 1 and limits the pyridine analog herbicide to its acid or salt form.

New claim 76 is directed to a method of killing or controlling weeds or unwanted plants in which an aqueous herbicidal concentrate composition containing glyphosate and triclopyr is diluted with water to form an application mixture; and an herbicidally effective amount of the application mixture is applied to unwanted vegetation. The weight ratio of glyphosate to triclopyr in the application mixture is between about 8:1 and about 20:1.

New claim 77 tracks claim 76 but calls for a combination of glyphosate and clopyralid in a weight ratio between about 8:1 and about 20:1.

Support for New Claims

Claims 71 to 74, 76 and 77 are fully supported by the existing claim structure.

Claim 75 is supported by the specification at paragraph [0053] which states that "a pyridine analog or

derivative thereof (i.e., an acid or salt or ester form thereof) such as those disclosed in US Pat. No. 4,692,184 (which is incorporated in its entirety by reference for all relevant purposes), is another component of the composition of the present invention." Paragraph [0053] of the instant application proceeds to give several examples of the free acid forms.

II. Withdrawn Rejections

Applicants respectfully acknowledge withdrawal of the rejection of claims 29-44, 46-51, 64, 65 and 67 under 35 U.S.C. §112, second paragraph.

III. Double Patenting

Since the claims on which the double patenting rejections have been based are still pending, there is no way to determine what the ultimate sequence of grant will be as between the claims of the instant application and those of US Ser. Nos. 11/368,872, 11/227,577 and 11/227,577. Depending on the ultimate disposition of these co-pending applications, there may or may not be a need to address double patenting issues in the present case.

Thus, Applicants respectfully submit that the double patenting rejections are premature. Depending on the sequence of grant and issue, and/or the nature and substance of the claims ultimately granted, there may never be a need to deal with the grounds on which the double patenting rejections are based.

Applicants assignee will readily submit a terminal disclaimer once it can reliably be predicted that one or more of the applications on which the double patenting rejections are based will issue as a patent before the instant application, and that the claims as issued create a basis for obviousness-type double patenting.

IV. Rejections under 35 U.S.C. §103(a)

Reconsideration is respectfully requested of the rejection of claims 29-32, 36-39, 43, 44, 46-53, 59, 62, 63 and 66 under 35 U.S.C. §103(a).

A. Issues re Previously Pending and New Claims

With regard to the claims that have been pending in the application, it is respectfully submitted that the references of record fail to establish a basis for *prima facie* obviousness of the aqueous herbicidal concentrates or methods for killing weeds to which the instant claims are directed.

The February 23, 2011 final action concludes that Applicants' evidence establishing the unexpectedly favorable properties of combinations of glyphosate and triclopyr is insufficient to establish non-obviousness of generic claims. Finding that this evidence is not commensurate in scope with the invention as claimed, the Examiner deems the evidence insufficient to overcome the rejection for *prima facie* obviousness under §103(a).

However, it is respectfully submitted that the Office action fails to support the threshold finding of *prima facie* obviousness. The *Graham* analysis offered by the PTO fails at the outset to adequately identify the differences between the claimed invention and the prior art. These differences include the combination of glyphosate and a pyridine analog co-herbicide, a combination which the references do not disclose, and a weight ratio of glyphosate to pyridine co-herbicide between about 7.6:1 and about 20:1, which the references also fail to disclose. The final action then proceeds to reconstruct the claimed invention by picking among the elements that are disclosed in the references, but fails to identify any reason in the

art for the claimed combination, and entirely fails to find any teaching that can even be reconstructed to yield the 7.6:1 to 20:1 glyphosate to pyridine analog ratio called for in claim 29, the 8:1 to 20:1 ratio called for in claim 62, or the ratios of claim 46 which vary from a range of 7:1 to 20:1 for formulations containing less than 315 g/L glyphosate salt a.e. to 10:1 to 20:1 for formulations containing less than 326 g/L glyphosate salt a.e.

In response to the final rejection, the instant amendment respectfully contests the grounds for obviousness asserted in the action, and further details Applicants' explanation of why the references could not reasonably have led one skilled in the art to the instantly claimed herbicidal concentrates and methods. As explained below, the case for obviousness is definitively refuted by the expert testimony in the Wright declaration of record, which elucidates the actual state of the art at the time of the claimed invention, a status that is relevant to *prima facie* obviousness, not only to unexpected results. While accepting the showing of the Wright declaration with regard to antagonism, the Office action fails to take the significance of this showing into account with regard to the issue of *prima facie* obviousness.

New claim 75 affords a further distinction over the Jimoh reference by requiring that the pyridine analog be present in acid or salt form.

New claim 71, 72 and 76 are specifically directed to combinations of glyphosate and triclopyr. Even if the references had established a basis for *prima facie* obviousness, claim 71, 72 and 75 should be patentable based on the unexpected results demonstrated for the combination of glyphosate and triclopyr in the Wright declaration.

New claims 73, 74 and 76 are specifically directed to combinations of glyphosate and clopyralid. Since the generic claims are submitted to be non-obvious, *a fortiori*, the claims requiring clopyralid should be found non-obvious.

B. The Cited References Fail to Establish *Prima Facie* Obviousness

Claim 29 is directed to an aqueous herbicidal composition comprising a combination of two herbicides, i.e., glyphosate and a pyridine analog, together with a surfactant. The claim encompasses salts and esters of the two herbicides, but the glyphosate is present predominantly in the form of an ammonium salt, an alkylammonium salt, a C_3-C_{16} alkanolammonium salt, a di-ammonium salt, an alkylamine salt, a C_3-C_{16} alkanolamine salt, an alkylsulfonium salt, a sulfoxonium salt, and combinations thereof. On an acid equivalent basis, the glyphosate and pyridine analog are present in a weight ratio of from 7.6:1 to about 20:1.

The purpose of such combination of herbicides is to provide early visible symptoms of burndown together with long term control of unwanted vegetation.

1. Hacker

Hacker, the principal reference, is specific to the control of harmful plants in tolerant or resistant crops of oil-seed rape, but the general description of the herbicide formulations useful for this purpose encompasses an exceptionally large number of combinations of herbicides. Glyphosate is only one of four different classes of herbicides in an "A" list that can be combined with an herbicide from a "B" list that includes at least sixteen additional different classes of herbicides. There is no

teaching whatsoever of the combination of glyphosate and any pyridine analog herbicide. The only pyridine analog disclosed by Hacker is clopyralid. Very little emphasis or guidance is offered with regard to clopyralid, but what there is would have led one skilled in the art to identify clopyralid as a candidate for combination with glufosinate rather than glyphosate. See col. 10, ll. 46-67, which expresses a preference for glufosinate ammonium salt in combination with a co-herbicide from among an eclectic list of 22 other herbicides, and especially Table 5 which is the only direct teaching of the combination of clopyralid with any herbicide from the so-called A group.

With respect to *prima facie* obviousness, it is important to understand that the generic teaching that an herbicide from the "A" list can be combined with an herbicide from the "B" list would not be understood by one skilled in the art as teaching that each herbicide from the "B" list is a reasonable candidate for combination with each herbicide from the "A" list. The experienced artisan would look to the reference as a whole in light of the knowledge in the art in order to gain an indication of which herbicides from one list would be compatible with those from another.

Moreover, claim 29 further call for glyphosate to pyridine analog weight ratio between about 7.6:1 and about 20:1, claim 62 calls for a range of 8:1 to 20:1, while claim 46 prescribes ranges which vary from 7:1 to 20:1 to 10:1 to 20:1 depending on glyphosate content. Hacker offers no scintilla of a suggestion of the claimed combination in any of these ranges of weight ratio. Glyphosate salts fall within the general class A2 whereas clopyralid falls within the general class B2. The narrowest

range offered for generic combinations of A2 and B2 which, it must be again be emphasized, is not specific to glyphosate and clopyralid, is between 1:20 and 60:1. Extending as it does essentially across the entire range of possible ratios, i.e., from 5% to >98% glyphosate, the disclosure of a range of 1:20 to 60:1 would be recognized by one skilled in the art as an expression of intended legal scope of coverage, not as a teaching that relates to any specific technical purpose such as herbicidal efficacy or safety.

The only specific teaching relating to actual selection of weight ratio is again for glufosinate and clopyralid, in Table 5, which exemplifies only a single ratio of 230/90, or 2.56:1, far below the claimed range of between 7.6:1 and 20:1.

To establish *prima facie* obviousness under *KSR*, there must have been a reason at the time the invention was made to bring together the components of the claimed combination in the claimed proportions. Manifestly, nothing in Hacker offers such a reason. Hacker provides a scattershot disclosure of an unlimited number of different herbicides with no direction or focus toward the combination of glyphosate and any pyridine analog herbicide.

Under Federal Circuit authority, the requisite reason to combine can also be found in the level of skill in the art or the nature of the problem. But there is nothing in the instant record that offers any evidence of a reason, either in the references, the level of skill or the nature of the problem, that would have led one skilled in the art to select glyphosate from the "A" list and combine it with clopyralid from the "B" list.

On the contrary, one skilled in the art would have been driven away from the claimed combination by the known antagonism between glyphosate and pyridine analog herbicides. This antagonism is corroborated by the declaration of Wright, and acknowledged by the Examiner. Running contrary to the experience in the art, Hacker's language insists that a synergistic herbicidal effect is achieved by the combination of glufosinate and clopyralid. However, to whatever extent such language would be read in the art as relevant to glyphosate, it is negated by the actual evidence in Hacker which instead confirms that clopyralid is also antagonistic to glufosinate. The Wright declaration explains this as well, and the Examiner has agreed.

In the absence of any suggestion in Hacker of a reason to combine, considered in light of the skill of the art which included a reason not to combine, it is respectfully submitted that one skilled in the art would not realistically have been drawn to the combination of glyphosate and any clopyralid or any other pyridine analog co-herbicide.

Thus, *prima facie* obviousness cannot be based on Hacker alone, even with respect to the bare combination of herbicides.

Hacker falls even much farther short of suggesting the claimed combination of herbicides in the claimed ranges of weight ratio.

3. "Mere Optimization"

The final Office action dismisses the claimed ratio of glyphosate to pyridine analog as "mere optimization." However, it is respectfully submitted that the law does not turn on "optimization" but on obviousness. Labeling a

feature as "optimization" does not by-pass or foreclose the three part inquiry which constitutes the *Graham* test.

Optimization of a given parameter may indeed be obvious where the art establishes that parameter at a certain value is a result-effective variable, so that one of skill could expect to gain a marginal benefit by varying the parameter in a particular direction or over a particular range. However, it is not mere "optimization" when a claimed parameter differs materially from the prior art based on considerations that are not taught or suggested by the art.

In fact, Hacker's excessively broad, essentially all-encompassing, generic ranges for the ratio of "A" list herbicide to "B" list herbicide would have suggested to the art that the ratios are not result-effective variables. So far as Hacker is concerned, essentially any ratio will do.

Thus, Hacker offers no teaching at all regarding the ratio of glyphosate to pyridine analog co-herbicide, much less that such ratio might be a result-effective variable. On the contrary, one skilled in the art would have been deterred from combining these herbicides at any ratio.

The only disclosure in Hacker that reflects a ratio of another herbicide to a pyridine analog is found in Table 5, but the example there is a combination of clopyralid and glufosinate, not glyphosate. Moreover, for what relevance it may have, the ratio is only 2.56:1.

The statute forbids negating patentability by the manner in which the invention was made, 35 U.S.C. § 103(a). Even assuming, *arguendo*, that the path to the invention was "optimization," *KSR* still requires that there have been a reason to modify a reference in a manner that meets the claimed invention, e.g., where there is a predictable

effect to be gained by the modification. No such reason or basis for prediction appears in Hacker. Thus, it is respectfully submitted that the claimed is invention distinguishes patentably over Hacker, not only because the reference offers no reason to combine glyphosate and a pyridine analog herbicide in the first place, but also because there is no remote basis in the reference that would have given one skilled in the art any reason to select a ratio of glyphosate to pyridine analog in the claimed ratio of between 7:1 or 7.6:1 and 20:1, a range in which Applicants have achieved visible burndown and long term control.

2. Hacker + Brigance

The PTO has never seriously asserted that Brigance teaches any combination of glyphosate and a pyridine analog co-herbicide. The reference is cited for its showing of surfactants that may be formulated with herbicides. Applicants do not dispute that it is conventional practice in the art to formulate herbicides with surfactants.

The Examiner has pointed out that Brigance teaches that certain surfactants can be formulated with glyphosate and that the same or similar surfactants can be formulated with picloram. But there is manifestly no suggestion in Brigance that supplies what is missing from Hacker, i.e., a reason to combine glyphosate with picloram or any other pyridine analog herbicide. Failing to suggest any combination of glyphosate and pyridine analog co-herbicide, Brigance offers utterly no guidance regarding any weight ratio of glyphosate to pyridine analog.

3. Hacker + Brigance + Jimoh

The absence of any realistic basis for *prima facie* obviousness is underscored by the PTO's resort to Jimoh,

the deficiencies of which are comparable to those of Hacker. At best, Jimoh is no more than cumulative to Hacker.

Jimoh relates to emulsion formulations that combine water-soluble and oil-soluble herbicides. Glyphosate and triclopyr are on a long list of water-soluble herbicides offered by Jimoh, but there is no remote suggestion of combining these two disparate herbicides for any reason or purpose. The statement that the composition of the Jimoh invention can optionally contain more than one water-soluble herbicide is appropriate for purposes of claim construction, i.e., to prevent the Jimoh claims from evaded by the presence of more than one water-soluble herbicide. But this function does not equate to any affirmative teaching of incorporating any combination of water-soluble herbicides, much less any combination of glyphosate with picloram or triclopyr.

While Jimoh does teach the desirability of combining a water-soluble herbicide with an oil-soluble herbicide, the list of water-soluble herbicides is lengthy, and the list of oil-soluble herbicides is well nigh endless. See claim 1 and paragraph [0038]. While the list does include dithiopyr and thiazopyr, there is no basis whatsoever in Jimoh for picking either of these needles out of the haystack for combination with glyphosate.

As noted above, the disclosure that a first herbicide can be drawn from one long list and combined with a second herbicide drawn from another long list would not be understood by one skilled in the art as teaching or suggesting the desirability, feasibility or even possibility of every combination and permutation of herbicides from the two lists.

One skilled in the art would have been aware that many considerations affect the feasibility of combining different herbicides into a single herbicidal formulation. There are general issues of compatibility of herbicides as affecting both the practicality of preparing a stable formulation and efficacy in the field. Moreover, there is the specific issue of antagonism between pyridine analog herbicides and glyphosate. As corroborated by the Wright declaration, one skilled in the art would have known of the antagonism between pyridine analogs and glyphosate, and been deterred from making the combination that is called for by the instant claims.

Jimoh also utterly fails to suggest that glyphosate be combined with a pyridine analog herbicide in a ratio between 7:1 or 7.6:1 and 20:1 Lacking any teaching of glyphosate + pyridine analog herbicides, the best that can be found in Jimoh is a generic teaching that weight ratio of water-soluble herbicide to oil-soluble herbicide range between 190:1 and 1:1. This is a far wider range than that called for in the instant claims. Moreover, there is nothing in the disclosure that would give one skilled in the art any reason to the restrict the ratio to the claimed range. All the working examples of Jimoh are limited to carfentrazone ethyl, which is not a pyridine analog, and all appear to embody a glyphosate to co-herbicide ratio of well over 100:1.

V. New Claim 75

New claim 75 further distinguishes the prior art by requiring that the pyridine analog be in the form of the acid or salt. This claim provides a further distinction over the Jimoh reference.

Jimoh does teach combinations of water-soluble herbicides but only combinations of one herbicide that is water-soluble with another herbicide that is oil-soluble. While the reference allows for the presence of more than one water-soluble herbicide, there is no affirmative teaching of any formulation containing more than one water-soluble herbicide, and certainly no suggestion of any combination of glyphosate with another water-soluble herbicide. Thus, Jimoh fails to teach or suggest the combination of claim 75 which comprises both a glyphosate salt and water-soluble pyridine analogs that are in the form of the free acid or salt. Thus, claim 75 provides a further distinction over any combination of glyphosate with an oil-soluble herbicide such as dithiopyr or thiazopyr, assuming such combinations to be even suggested by Jimoh, which Applicant's submit they are not.

The Fiard reference that was cited against claims 68-70 (now canceled), does not make up for the deficiencies of Hacker, Brigand and Jimoh. The reference lists clopyralid among numerous water-soluble herbicides but contains no remote suggestion of any combination of clopyralid or any other water-soluble pyridine analog with a glyphosate salt. Fiard contains only one example of a combination of a glyphosate salt and a co-herbicide, i.e., Example 15 directed to the combination of IPA glyphosate and acifluorfen. Acifluorfen is not a pyridine analog, nor is it a heterocyclic compound of any type.

Thus, it is respectfully submitted that claim 75 distinguishes patentably over any combination of Hacker, Brigand, Jimoh and Fiard under 35 U.S.C. §103(a).

VI. New Claims 71, 72, and 76

It is respectfully submitted that nothing in the art or in the interpretation of the art by the Examiner should bar the patentability of claims 71, 72, and 76, each of which affirmatively requires the combination of a glyphosate salt with triclopyr.

There is manifestly no basis for any finding of *prima facie* obviousness of any of claims 71, 72, or 76. But even if *prima facie* obviousness could be established, it is overcome by the showing in the Wright declaration of favorable and unexpected results from the combination of glyphosate salt and triclopyr.

VII. New Claims 73, 74 and 77

Each of claims 73, 74 and 77 is limited to the combination of a glyphosate salt with clopyralid.

For the reasons outlined above, Applicants respectfully submit there is no basis in the references for the claimed compositions, which comprise a combination of glyphosate and clopyralid, or the method of administrating the claimed composition to unwanted vegetation.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that each of claims 29-39, 43, 44, 46-53, 59, 62, 66, 67 and 71-77 distinguishes patentably over the art of record under 35 U.S.C. §103(a). Favorable reconsideration and early allowance of all claims is respectfully solicited.

The Commissioner is hereby authorized to charge any deficiency or credit any overpayment of any required fee during the entire pendency of this application to Deposit Account No. 19-1345.

Respectfully submitted,

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